

# Oak Fire Roadside Hazard Tree Project

## WILDLIFE BIOLOGICAL EVALUATION

HAPPY CAMP/OAK KNOLL RANGER DISTRICT  
KLAMATH NATIONAL FOREST



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## Introduction

This Biological Evaluation (BE) has been prepared in accordance with the Endangered Species Act of 1973, as amended, and follows policy established in Forest Service Manual Direction (FSM 2670) for Threatened, Endangered, Proposed, Candidate, and Sensitive (TEPCS) wildlife species for the Oak Fire Roadside Hazard Tree Project. Potential effects of project activities, including associated actions, to sensitive wildlife species are disclosed and analyzed.

Sensitive wildlife species are those species that may show evidence of a current or predicted downward trend in population numbers or in habitat suitability that could substantially reduce species distribution. Sensitive wildlife species are designated for each National Forest by the Regional Forester (FSM 2670.5) and managed under the authority of the NFMA. The Klamath National Forest has 14 species designated as wildlife sensitive species.

Due to the diverse habitats that occur across Klamath National Forest not every sensitive species will occur within the Analysis Area. The sensitive species for the Klamath National Forest are listed below. See Appendix A for Pacific Southwest Regional Forester's Sensitive Species List for Region 5.

This Biological Evaluation addresses the following species:

- Bald Eagle (*Haliaeetus leucocephalus leucocephalus*)
- Northern Goshawk (*Accipiter gentiles*)
- Willow Flycatcher (*Empidonax traillii*)
- Fisher (*Martes pennanti pacifica*)
- North American Wolverine (*Gulo gulo luteus*)
- Pacific (American) Marten (*Martes americana*)
- Fringe-tailed Myotis (*Myotis thysanodes*)
- Pallid Bat (*Antrozous pallidus*)
- Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Siskiyou Mountain Salamander (*Plethodon stormi*)
- Tehama Chaparral Snail (*Trilobopsis tehemana*)
- Western Bumble Bee (*Bombus occidentalis*)

Based on habitat, species distribution, and known species occurrences, the great grey owl and the greater sandhill crane, would not be affected by the proposed project. These species will not be discussed further in this document. See Table 1 in Summary of Effects section below for more information.

## Summary of Effects

The following table summarizes the effects to wildlife species from the Oak Fire Roadside Hazard Tree Removal Project. See specific species analysis sections for more information.

Table 1. Summary of Effects for Klamath National Forest Wildlife Species.

Species	Habitat Present?	Species Documented in or near Action Area?	Determination	Rationale
Bald Eagle	No	Yes	No Effect/Impact	Known sites adjacent to Action Area, however, Design Features will protect species.
Great Gray Owl	No	No	No Effect/Impact	No habitat or known locations in or near Action Area or Analysis Area.
Greater Sandhill Crane	No	No	No Effect/Impact	No habitat or known locations in or near Action Area or Analysis Area.
Northern Goshawk	Yes	Yes	MIIH, NLCT*	Known sites and habitat in Action Area, however, Design Features will reduce impacts.
Willow Flycatcher	No	No	No Effect/Impact	No habitat or known locations in or near Action Area or Analysis Area.
Fisher	Yes	Yes	MIIH, NLCT*	Known sites adjacent to Action Area and habitat in Analysis Area, however, Design Features will reduce impacts.
North American Wolverine	Yes	No	No Effect/Impact	Habitat in Action Area, however, Design Features will reduce impacts and no confirmed sites on the Klamath. Nearest known site is in the eastern Tahoe area.
Pacific (American) Marten	Yes	No	MIIH, NLCT*	Habitat in Action Area, however, Design Features will reduce impacts.
Fringe-tailed Myotis	Yes	No	MIIH, NLCT*	Habitat in Action Area, however, Design Features will reduce impacts.
Pallid Bat	Yes	No	MIIH, NLCT*	Habitat in Action Area, however, Design Features will reduce impacts.
Townsend's Big-eared Bat	Yes	No	MIIH, NLCT*	Habitat in Action Area, however, Design Features will reduce impacts.
Siskiyou Mountain Salamander	Yes	No	MIIH, NLCT*	Habitat in Action Area, however, Design Features will reduce impacts.
Tehama Chaparral Snail	Yes	No	MIIH, NLCT*	Habitat in Action Area, however, Design Features will reduce impacts.
Western Bumblebee	Yes	No	No Effect/Impact	Habitat in Analysis Area, however, no proposed activities in habitat.
*MIIH, NLCT = May Impact Individuals or their Habitat, but the action would Not Likely Contribute to a Trend towards Federal Listing or loss of viability to the population or species.				

## Analysis Area

### Action Area (*Proposed Action*)

The Oak Fire Roadside Hazard Tree Project is located within the Indian Creek, Ukonom Creek-Klamath River, Dillon Creek and Clear Creek 5th field watersheds. The project is about two to ten miles Southwest of Happy Camp, California, in Siskiyou County: Township 15 North, Range 5 East, Sections 15, 16, 21 to 25, 27, and 36; Township 15 North, Range 6 East, Sections 1 to 4, 9 to 12, 14 to 16, 21 to 23, and 26 to 29; Township 5 North, Range 7 East, Sections 5-7; Township 16 North, Range 6 East, Sections 1, 2, 11 to 13, 24, 25, and 36; and Township 16 North, Range 7 East, Sections 16 to 21, and 29 to 32, Humboldt Meridian. Vicinity and project maps are enclosed. Elevation ranges from 1,200 to 6,000 feet.

This Project is a result of the Oak Fire that started on the Klamath National Forest on August 11<sup>th</sup> or so, as a result of a lightning storm. The fire started about five miles west of Happy Camp, CA in the upper part of the Oak Flat Creek drainage near the Baldy Mountain lookout. Overall, the Oak Fire burned in a more mosaic pattern which resulted in burning a few patches of high fire severity that were surrounded by lower fire severity. Less than 30 percent of the fire burned at moderate and high severity. The patches of moderate or high severity fire range in size from less than one acre to almost 2,500 acres with most patches less than 100 acres in size.

In terms of general habitat changes, the Oak Fire reduced a large amount of mid- to late-successional mixed conifer habitat and set back the regeneration of forested areas that were future mid- to late successional conifer habitat. The fire affected portions of mid- and late-seral habitat in some areas to the point where the habitat no longer functions in its previous role or the quality of the habitat is greatly reduced. These fire affected areas are now set back to an early seral stage. In low severity burn areas, most of the stand mortality occurred in smaller understory trees. Over time, these smaller trees will fall to the forest floor and contribute to future fuel loading, but in much smaller quantities than forested areas that experienced moderate to high severity fire.

Overall, most of the moderate and high severity affected areas will not support the same wildlife species as they did pre-fire for many years; while the low severity burned habitat is likely to continue to function similarly to the pre-fire condition and support many of the same wildlife species as it did pre-fire.

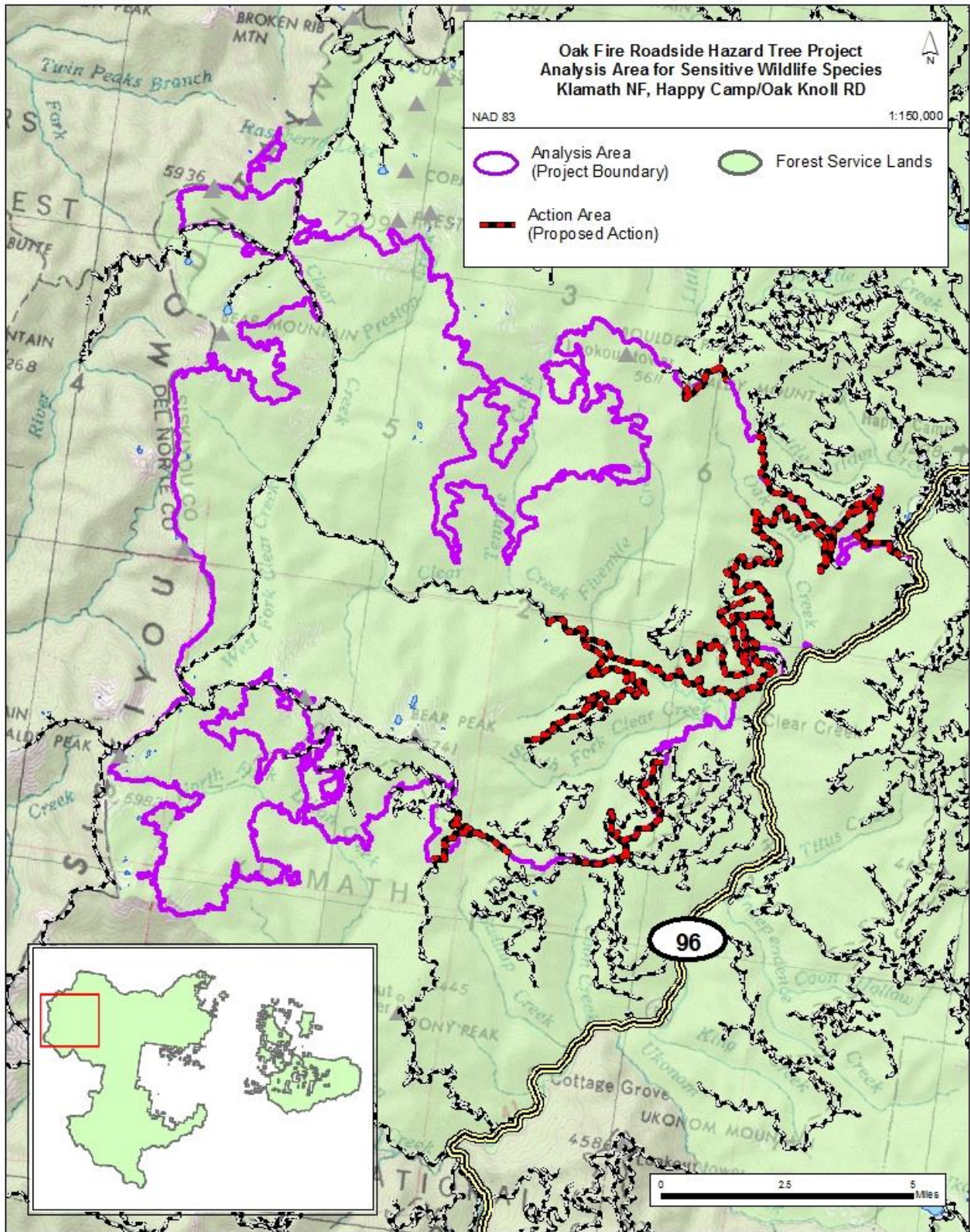
### Spatial Bounds

The perimeter boundary for the Oak Fire was used as the Analysis Area to assess for direct, indirect, and cumulative effects to all sensitive terrestrial species, unless otherwise noted. This Analysis Area (approximately 71, 237 acres) is large enough to be representative of the effects of fire and natural tree mortality, along with timber harvest, road management and other activities that occur across the landscape. In addition, the area is sufficiently large enough to evaluate the habitat for all terrestrial sensitive species addressed. See Figure 1 for Analysis Area Map.

### Temporal Bounds

The length of time for effects analysis of proposed activities associated with the Project is approximately five years. This is based on the probable contract length for the proposed project, and the timeframes for related activities. The temporal scale of the effects analysis extends 25 years into the future, enough time for forest conditions and stands to develop, along with trees to die and/or fall over and create habitat. Temporal bounds for specific activities are discussed in each species analysis where applicable.

Figure 1. Map of Analysis Area for Oak Fire Roadside Hazard Tree Project.





## Methodology, Data Sources and Assumptions

Data used included information from District personnel, RAVG data, NRIS data, CNDDDB data, research literature, and GIS dataset information to assess existing habitat in the project area including northern spotted owl habitat (EVEG) and RAVG data as a proxy for other species habitat, such as Northern goshawk, American marten and fisher, along with riparian areas, old growth, meadows, canopy cover, snags and down wood, etc.

RAVG data are remotely sensed vegetation burn severity data that is derived from Landsat Thematic Mapper imagery taken following a wildfire. The pre-fire and post-fire sub-scenes were used to create a Relative Differenced Normalized Burn Ratio (RdNBR). The RdNBR is correlated to the variation of burn severity within a fire. The RdNBR data are calibrated with the Composite Burn Index (CBI) as well as tree mortality variables. See the USGS National Burn Severity Mapping web site at: [http://burnseverity.cr.usgs.gov/fire\\_main.asp](http://burnseverity.cr.usgs.gov/fire_main.asp) for background information on fire severity mapping procedures. The severity ratings provided by the derived products are based on the vegetation burn severity. Following the each wildfire, RAVG grid code severity ratings for changes in basal area were converted to a vector format and overlaid with the NSO EVEG habitat layer (pre-wildfire habitat layer) in order to analyze effects to NSO habitat from wildfire, and then as a result, to assess other species in this document where applicable.

To evaluate post-fire habitat conditions, the fire severity data (RAVG) and the percent basal area loss in the RAVG classes described below were applied to the project area, the EVEG NSO habitat layer, and the proposed action using GIS. Interpretation of the RAVG data allows the spatially explicit assessment of fire effects to vegetation, including changes in the live tree density and canopy cover. In addition to changes in vegetation from the wildfire, changes in vegetation from all sources were also captured in the analysis. Loss of vegetative cover from fire suppression actions of the 2017 fires was also captured and was incorporated into the post-fire habitat baseline. Fire suppression actions that affected NSO NRF habitat were captured and accounted for at the project level, post-fire habitat layer and are described in more detail in the Emergency Consultation BA for the Oak Fire. (See Appendix A of the Wildlife Biological Assessment Batched Consultation for the Seiad-Horse Risk Reduction Project, Oak Roadside Hazard Project, Horse Creek – Robinson Project, Johnny O’Neil Project, Thom Seider Project & 2017 Emergency Consultation for Fire Suppression Actions Conducted During the 2017 Wildfires – USDA 2018).

Burn severity is defined as the degree of environmental change caused by fire, or how much fire has affected the ecological community, and is generally analyzed on a landscape level. Burn severity can be related to changes in vegetation by comparing the pre-fire vegetation to the post-fire vegetation condition. Burn severity is used to determine the likely effects of fire on habitat. Fire intensity is the driver for burn severity, but that relationship is not necessarily constant, as the ecological community will show varying responses and degrees of sensitivity to fire. With all fires, there is a large degree of heterogeneity and range between very low and very high impacts, which results in a mosaic of effects, including patches that remain relatively unaffected among areas of high impact. Burn severity is a measure along that gradient of change. General categories used in this analysis to indicate burn severity are as follows:

Very Low or Unchanged: 0% – 25% Basal Area (BA) killed; grid code 1: This means the area may be indistinguishable from pre-fire conditions. This does not necessarily indicate that the area did not burn.



Low: 25% – 50% BA killed; grid code 2: This represents areas of surface fire with little change in cover and little mortality of the structurally dominant vegetation.

Moderate: 50% to 75% BA killed; grid code 3: This severity class indicates a mixture of effects between low and high on the structurally dominant vegetation.

High: 75% to 100% BA killed; grid code 4: This represents areas where the dominant vegetation incurred high to complete mortality.

For the Oak Fire Roadside Hazard Tree Project, roadside hazard removal is estimated to be hazards likely to occur along roadsides for a distance of 125 ft. on either side of the road (250 ft. total). Approximately 4,539 trees have been flagged as potential hazards in this estimated road width distance. Total acres for 39 miles of road at a distance of 125 ft. on either side of road (250 ft. total) is approximately 1502 acres, with trees marked in this area for removal in the Moderate to High RVAG categories. No trees are marked for removal in the Very Low to Low categories. This acreage will be used to assess impacts to sensitive wildlife species. Although individual trees are selected to be removed as hazards, the individual tree represents just one component of the overall habitat for sensitive species, and as a result, habitat acreage will be used as one measurement indicator in this document. Disturbance is another measurement indicator used to assess impacts to sensitive wildlife species in this document.

***It is important to note that the acreage chosen to analyze sensitive wildlife species in this document, does not reflect or correlate to any analysis used for impacts to northern spotted owls.***

The northern spotted owl is analyzed in the Biological Assessment for this project. See Appendix A of the Wildlife Biological Assessment Batched Consultation for the Seiad-Horse Risk Reduction Project, Oak Roadside Hazard Project, Horse Creek – Robinson Project, Johnny O’Neil Project, Thom Seider Project & 2017 Emergency Consultation for Fire Suppression Actions Conducted During the 2017 Wildfires – USDA 2018.

## Regulatory Framework and Consistency

In accordance with FSM 2673.42, determinations have been made on the degree of impact the proposed activities may have on Sensitive Species. Along with the Oak Fire Roadside Hazard Tree Decision Memo and analysis below on each species, these determination statements meet the requirements of the Biological Evaluation for Sensitive Wildlife Species. These statements are based on available information on the distribution, presence in the project area, habitat requirements, and management strategies for these species, as well as the project design and location. These determination statements are for the segment of the population using the Affected Area, not the entire population, and an additional analysis that assessed viability at the forest scale. All alternatives are consistent with the NFMA diversity requirements for wildlife. In addition, this Project is consistent with the Klamath National Forest Land and Resource Management Plan. The project was designed in conformance with Forest Plan direction for repair and maintenance of roads, trails, and landline boundaries.

Federal laws and direction applicable to Sensitive Species on the Klamath National Forest include the NFMA and FSM 2670. The NFMA requires the Forest Service to:

“provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives,”  
16 USC 1604(g)(3)(B).

The proposed project and the associated Action Alternative is consistent with pertinent legislation and species specific management and recovery plans including:

- Bald Eagle, Golden Eagle Protection Act
- Migratory Bird Treaty Act

Bald eagles no longer receive protection from the Endangered Species Act, but this project is consistent with the Forest Plan and all other applicable direction, such as the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act. This species was delisted from threatened and now remains on the Regional Forester’s Sensitive Species List for Region 5.

## Project Description and Proposed Action

The Happy Camp/Oak Knoll Ranger District, Klamath National Forest proposes the Oak Fire Roadside Hazard Tree Project to reduce threats to public safety along National Forest Transportation System (NFTS) roads within the Oak Fire perimeter. The proposed action will treat approximately 39 miles of roads within the Oak Fire perimeter. Of the system roads within the fire perimeter, roads were selected for treatment because they are needed either for public access or administrative use (i.e. fire suppression tactics) and were burned at a moderate to high severity resulting in hazard trees along the roadway. A map of the proposed action is shown in Figure 2.

### Roadside Hazard Tree Removal (39 Miles)

Trees adjacent to National Forest System roads or along county roads adjacent to National Forest System lands within the project area will be evaluated for hazard tree removal. Two different assessments will be made to determine roadside hazard trees. First, to identify fire-injured or fire-killed trees that have a 70 percent or greater chance of dying within three to five years, the following guidelines will be used: Report #RO-11-01 “Marking Guidelines for Fire-Injured Trees in California” (Smith and Cluck, 2011). This guideline only looks at a tree that has been fire killed or fire-injured; it does not give it a rating towards being a hazard to the road. These fire-injured or fire-killed trees must have a 70 percent or greater chance of dying within three to five years in order to be considered a hazard tree. This guideline will also be used in the salvage harvest proposed action below.

Second, for trees that do not have a 70 percent or greater chance of dying within three to five years due to fire-injury, Report #RO-12-01 “Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region” (Angwin et al 2012) will be used to identify if these trees are moderate or high potential hazards to the roadway. This report provides guidance on whether or not the tree is a hazard to a road. The tree can be fire-killed, green with a high hazard potential, or not fire affected but dead with a high hazard potential. Trees identified as having high hazard potential would be removed or abated and left on site where necessary to meet the requirements of the Forest Plan. Trees identified as having a moderate hazard would be monitored and evaluated for possible future removal.

Third, for trees equal to or greater than 45 inches in diameter, we will identify any fire-injured trees that have a 90 percent probability of dying in the next three to five years using the criteria in Report #RO-11- 01 “Marking Guidelines for Fire-Injured Trees in California” (Smith and Cluck, 2011). Those fire- injured trees that have 90 percent or greater probability of mortality would be considered potential hazards and would be marked for cutting, and either removed or left on site if necessary to meet the requirements of the Forest Plan (e.g., for hazard trees within riparian reserves, as described below).

Removal of merchantable roadside hazard trees would include the use of ground-based and skyline logging systems.

#### Roadside Hazard Trees in Riparian Reserves

In stream course riparian reserves, all hazard trees will be felled according to the hazard evaluation described above; the difference is in what happens to a hazard tree once it has been felled. Within stream course riparian reserves, roadside hazard trees equal to or greater than 24 inches diameter at breast height will be felled and left on site if the following criteria are met: 1) the feller can safely fell the hazard tree away from the road without causing excessive damage to residual tree crowns or boles; 2) removal would cause excessive soil disturbance such as gouging; 3) the tree does not lean towards the road; 4) once fallen the tree would not disrupt flow through a drainage structure; 5) where leaving the felled tree would not contribute to or cause excessive fuel loading (this threshold may be met sooner in areas identified for fuels reduction); and 6) felled trees that are the furthest from the road, below the road, and on steeper slopes below the road will be favored for leaving. Hazard trees in stream course riparian reserves where these criteria are not met, or that are less than 24 inches in diameter at breast height, will be felled and removed.

### **Purpose and Need for Action**

As snags continue to decay, break, and fall as a result of the Oak Fire, surface fuel loading and the severity and intensity of future fires will increase. Increased fire intensities and fallen snags will inhibit the effective control of future fires and put fire suppression crews at increased risk. Fallen hazard trees will also impact road access along miles of roadways, impairing fire suppression efforts. Local communities and residential enclaves adjacent to forests that are part of a larger fire-adapted ecosystem. The goal of these areas is to protect lives and properties of local communities.

- There is a need for public safety because the Oak Fire created unsafe conditions for the public and for adjacent private landowners. Ways to meet the need to provide for public safety include:
  - Removing hazards created by fire-killed and damaged trees along public roads.
- There is a need for safe conditions for forest workers, firefighters, tree planters, and recreationists. Ways to provide for safety include:
  - Removing hazardous fire-killed trees along 39 miles of road identified within the Oak Fire.

#### Existing and Desired Condition

The table below provides a summary of the existing and desired conditions, which were considered during development of the purpose and need and proposed action.

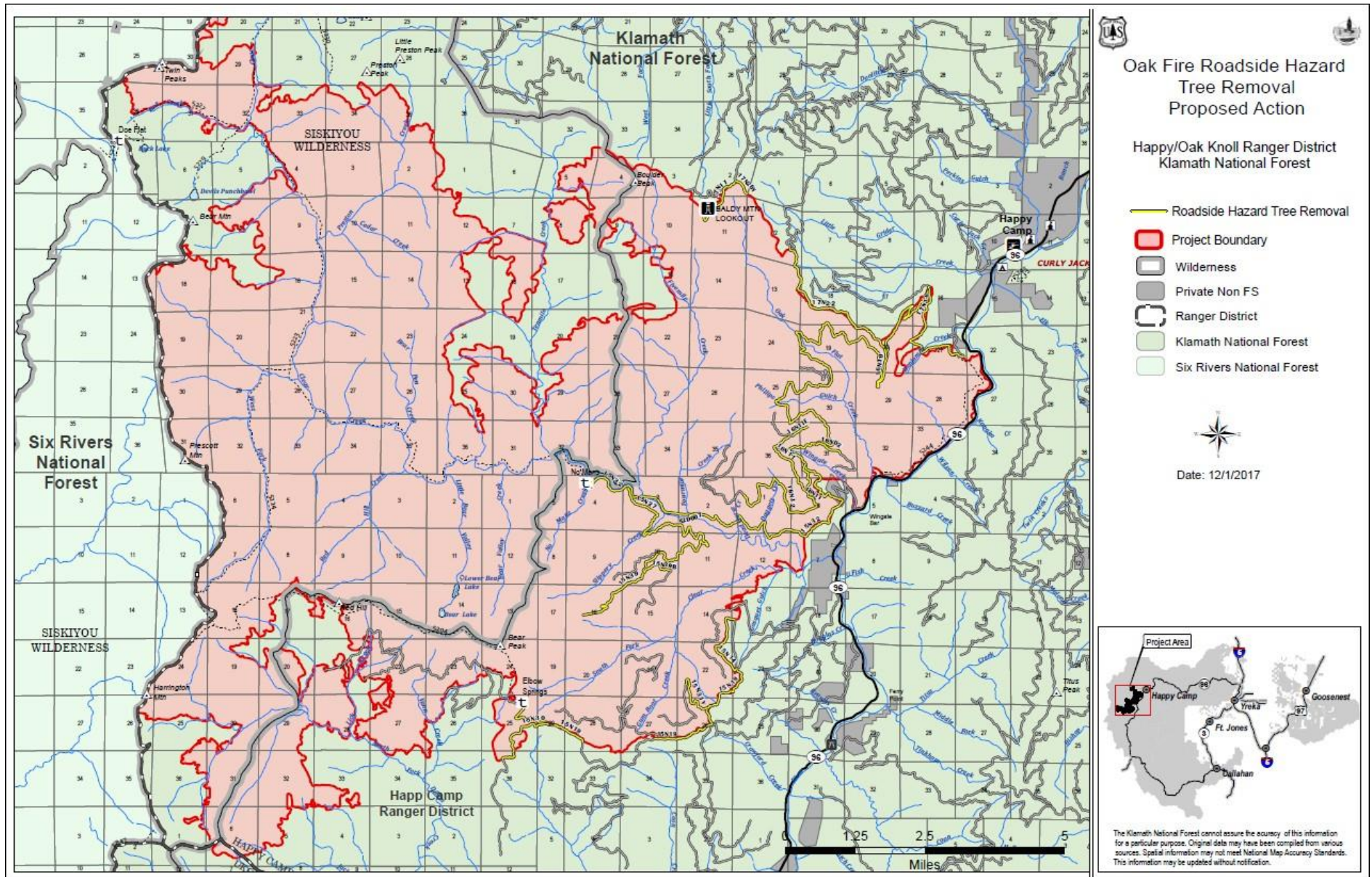
Table 2. Summary Table of Existing and Desired Condition.

Resource Area or Statement of Need	Existing Condition	Desired Condition	Need for Change
There is a need to improve public safety because the Oak Fire created unsafe conditions for the public and adjacent private landowners.	Unsafe conditions due to hazards from fire-killed trees along public roads and adjacent to private property.	Public safety is a part of several standards and guidelines in the Forest Plan (e.g., 12-820-9, 22-1, 22-2, 22-8).	The existing situation is not safe; improvement of safety will help to meet local public needs and demand as expressed by community leaders, concerned and interested groups and potentially affected interests (Forest Plan, Standard 25-3, page 4-64)

## Project Design Features

Thinning operations and fuels reduction activities, such as hazard tree removal, have the potential to create noise and smoke above ambient levels, so the implementation of site specific temporal and/or spatial project design features (PDFs) are proposed to minimize or avoid significant impacts to sensitive wildlife species. See Appendix B for more information.

Figure 2. Map of Oak Fire Roadside Hazard Tree Project Area and Proposed Action.



## Species Accounts

### Bald Eagle (*Haliaeetus leucocephalus*)

#### *Environmental Baseline*

Bald eagles are opportunistic feeders, preying on fish, waterfowl, and small mammals; stealing food from other predators; and scavenging carrion. Nesting territories are usually associated with lakes, reservoirs, rivers, or large streams and within close proximity of water bodies that support adequate food supply (Lehman 1979). Bald eagle nests are typically located in uneven-aged, multi-storied stands with old-growth components. Most nests in California are located in ponderosa pine/mixed conifer stands and nest trees are primarily often ponderosa pine (Lehman 1979). Bald eagles are common during migration and in winter along major river systems such as the Klamath and Scott Rivers, and in agricultural areas such as Scott Valley.

No known nest sites occur within the Oak Fire Analysis Area; however, there are multiple observations immediately adjacent to the project activities. The closest known bald eagle nest site to the Project is along the Klamath River, approximately 0.5 miles from proposed activities. Other bald eagle observations in the area are along the Klamath River, more than 1.0 miles from proposed activities.

#### *Direct and Indirect Effects*

##### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on bald eagle roosting, foraging, or nesting sites. Existing conditions for bald eagle nesting and perching habitats would remain unaltered under the No Action Alternative.

##### Alternative 2 – Action Alternative

Proposed activities from the Action Alternative would have little to no impact on bald eagle habitat and the likelihood of bald eagles nesting within 125 feet on either side of the selected roads for treatment is low. Proposed activities are 0.5 miles or greater from known bald eagle locations. Potentially foraging eagles along the Klamath River would not likely be affected by the noise produced by the proposed activities.

#### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to bald eagles or associated habitat.

Under the Action Alternative, given the distance from the known eagle nest sites, incidental observations along the Klamath River, no eagle habitat will be treated, minimum amount of noise produced near areas where eagles may be foraging, along with design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project will have **No Effect** on bald eagles or their habitat.

### Northern Goshawk (*Accipiter gentilis*)

#### *Environmental Baseline*

The goshawk is a forest hawk associated with late successional forest, or with mid-successional forests with late successional elements, in mixed conifer or true fir habitat types. Foraging habitat is variable and includes mid- and late-successional forest, natural and man-made openings, and forest edges. Moderate and high quality habitats contain abundant large snags and large logs for prey habitat and plucking posts. Goshawks generally breed in older-age coniferous, mixed, and deciduous forest habitats. This habitat provides large trees for nesting, a closed canopy for protection and thermal cover, and open spaces allowing maneuverability below the canopy. Forest stands containing nests are often small, approximately 25-250 acres; territories may contain 1–5 alternative nest areas. In northern California, maximum distance between



alternative nest stands was about 1 mile, and approximately 85% of alternate nest stands were <0.5 mile apart.

On the west side of the Klamath National Forest, goshawk habitat generally consists of mid- and late-successional mixed conifer forest with scattered harvested and natural openings. Many of the known goshawk sites are associated with northern spotted owl sites and goshawks were found incidentally while surveying for owls. In addition, some nest sites are found in hardwoods, such as madrone. Therefore suitable goshawk habitat, for this exercise, is considered equivalent to nesting, roosting and foraging habitat defined for spotted owls. Foraging habitat is variable and includes mid- and late-successional forest, natural and man-made openings, and forest edges.

Within the Oak Fire Perimeter Area, goshawk habitat varies depending on fire severity of the Oak Fire. Some of the remaining habitat would be resulting low fire severity and foraging remains in pockets where high quality habitat still occurs which could support nesting. Suitable NSO nesting, roosting and foraging habitat was used as a proxy to evaluate potential habitat where it occurs. Approximately, 44,021 acres of potential habitat exist in the Oak Fire Analysis Area, with approximately 785 acres (or 2 percent of available habitat) of potential habitat proposed for hazard tree removal. Two historic goshawk territories occur in the Project Area but are both 1.0 miles away from proposed roadside treatment. Surveys site conducted in 2018 produced a potential new site location for goshawk. Nesting was not confirmed but one adult was observed in the project area, along with white wash observations. No pair, young or family unit was detected in the area, associated with this single adult observation (Allen pers comm. 2018). See Design Criteria in Appendix B for protection measures.

#### *Direct and Indirect Effects*

##### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on Northern goshawk foraging or nesting habitat. Existing conditions for Northern goshawks and their habitat would remain unaltered under the No Action Alternative.

##### Alternative 2 – Action Alternative

Proposed activities from the Action Alternative may impact Northern goshawks and/or habitat. Northern goshawks have the potential to nest or forage within 125 feet on either side of the selected roads for treatment. Proposed activities are 1.0 miles or greater from two known Northern goshawk territories, however, 2018 surveys produced a detection of one adult goshawk using the road prism in the proposed action area (See Allen 2018 - District personnel, conversation with J. Allen 2018). Using NSO habitat as a proxy, approximately 785 acres of potential habitat would be directly affected by the proposed action, which is about 2% of the available habitat in the Oak Fire Perimeter Area. In addition, Northern goshawks potentially foraging along the road prism may be impacted by proposed activities. Noise produced by proposed activities may impact Northern goshawks nesting or foraging in the vicinity of the road prism as well.

#### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to Northern goshawk or associated habitat.

Under the Action Alternative, given the distance from known Northern goshawk territories, the low amount of Northern goshawk habitat impacted and the amount of noise produced near areas where Northern goshawks may be foraging, along with design features for this project, the proposed activities of the Oak Fire



Roadside Hazard Tree Project, “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

## **Willow Flycatcher (*Empidonax virescens*)**

### ***Environmental Baseline***

The willow flycatcher is a “rare to locally uncommon” summer resident in wet meadow and montane riparian habitats at 2000–8000’ in the Sierra Nevada and Cascade Range. In California, this species most often occurs in broad, open river valleys or large mountain meadows with lush, high-foliage volume willows (CDFG 2005). Across its range, willow flycatchers typically select willow for nesting but may use other species of shrubs, typically close to ground in low shrubs and bushes near water.

Habitat for willow flycatchers in the western side of the Klamath National Forest is primarily located along the Klamath River and the larger adjacent streams, the Marble Mountain Wilderness, and the Siskiyou Crest. For the past 13 years willow flycatchers have been captured at the Constant Effort Mist Netting Station in willow habitat along the Klamath River near Seiad Valley. No areas of high quality habitat are known to occur within the Oak Fire Analysis Area. Surveys will not be conducted for this species as the project does not occur within or adjacent to suitable habitat.

### ***Direct and Indirect Effects***

#### **Alternative 1- No Action Alternative**

The No Action Alternative would have no direct or indirect effect on willow flycatchers or associated habitat. Existing conditions for willow flycatcher and their habitat would remain unaltered under the No Action Alternative.

#### **Alternative 2 – Action Alternative**

Proposed activities from the Action Alternative would have no impact on willow flycatcher habitat and the likelihood of willow flycatchers nesting within 125 feet on either side of the selected roads for treatment is low due to the lack of habitat available. With project design features associated with riparian reserves and the limited activities proposed in riparian habitat, Alternative 2 will not limit the availability of riparian habitat conditions for the willow flycatcher.

### ***Determination***

Under the No Action Alternative, there would be no direct or indirect effects to willow flycatchers or associated habitat.

Under the Action Alternative, there will be no impact on willow flycatchers or their habitat. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project will have **No Effect** on willow flycatchers or their habitat.

## **American Marten (*Martes americana*)**

### ***Environmental Baseline***

This species uses mature and old growth forest habitats, typically distributed at a higher elevation than the fisher. Generally, mature and over-mature true fir/hemlock/pine habitat occurring above 5,000 feet

in elevation with a dense canopy (>40%) and adequate large, coarse woody debris is considered marten habitat (CDFG 1990). In Northern California, American martens are limited to conifer-dominated forests and vegetation types nearby. In most studies of habitat use, martens were found to prefer late-successional stands of mesic coniferous forest, especially those with complex physical structure near the ground (Buskirk and Powell 1994). Xeric forest types and those with a lack of structure near the ground are used little or not at all. The preference and apparent need for structure near the ground, especially in winter, appears universal (Ruggiero et al. 1994). The marten is predisposed by several attributes to impacts from human activities, including: its habitat specialization for mesic, structurally complex forests; its low population densities; and its low reproductive rate for a mammal of its size (Ruggiero et al. 1994). Extensive logging and forest fires reduce the value of areas to martens, sometimes for many years.

The distribution of marten on the west side of the Klamath is not well known due to the lack of adequate survey data. Surveys for forest carnivores have been conducted on the Forest (see fisher); marten have not been detected at any of the survey stations to date. Incidental sightings of marten have been recorded on four districts (excluding Oak Knoll), but cannot be confirmed. Positive detections at camera survey stations on the Gooseneck Ranger District of the Klamath National Forest have found marten using true fir habitats near 7000 feet in elevation.

Martens are considered as an uncommon to common permanent resident of California North Coast regions and Sierra Nevada, Klamath, and Cascades Mountains. Optimal habitats are various mixed evergreen forests with more than 40 percent crown closure, large trees and snags. Important habitats include red fir, lodgepole pine, subalpine conifer, mixed conifer, Jeffrey pine, and eastside pine. On the KNF, marten have been observed in higher elevations, typically within true fir, lodgepole pine, and subalpine conifer stands.

Suitable NSO nesting, roosting and foraging habitat was used as a proxy to evaluate potential American marten where it occurs above 4,500 feet. Approximately 5,166 acres of marten habitat occurs in the Oak Fire Analysis Area, with approximately 30 acres (or 0.006% of available habitat) of potential habitat proposed for hazard tree removal.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on marten habitat. Existing conditions for marten and their habitat would remain unaltered under the No Action Alternative.

#### Alternative 2 – Action Alternative

Proposed activities from the Action Alternative will have little impact on marten and/or habitat. Using NSO habitat as a proxy, only 30 acres of potential habitat would be directly affected by the proposed action, which is about 0.006% of the available habitat in the Oak Fire Analysis Area. Temporary displacement may occur with road use activities in the area that are associated with proposed activities.

### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to marten or associated habitat.

Under the Action Alternative, there will be little to no impact on marten or their habitat, since only 0.006% of potential habitat may be affected. Temporary displacement may occur with road use activities in the area

that are associated with proposed activities. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

### **Fisher** (*Martes pennanti pacifica*)

#### ***Environmental Baseline***

Fisher habitat distribution occurs from Del Norte and Trinity counties east through Siskiyou and Shasta Counties, and south through the Sierra Nevada to Tulare County. In a compilation of published and unpublished fisher literature from South-Central British Columbia, Western Washington, Western Oregon, and California, fishers are found to be associated with habitats containing moderate to dense forest canopy in low- and mid- elevation areas; home ranges include mosaics of different vegetation types and forest age classes with complex forest structure for denning, resting, and foraging. Some home ranges throughout the range were positively associated with the presence of younger successional stages which likely provide source habitat for fisher prey. In evaluation of fisher resting site selection in three study areas including the Klamath Mountains, Buskirk and others (2010) found when compared to random sites, fishers selected areas with mesic (balanced) moisture and temperature regimes, higher vegetation cover, steeper in slope, and contained a relatively high basal area of conifers, hardwoods, and snags, and relatively large diameter conifer and hardwoods. One study located on the Trinity River, California, use areas appeared to be negatively associated with non-forested or open shrub habitats. While home ranges may contain mosaics of different vegetation types and age classes, this species is highly associated with large live and dead trees and structural features. Fishers are known to use multiple rest trees in their home range and typically are located in large live trees with some form of deformity such as mistletoe, avian or mammal platform nests, and cavities (Zielinski 2013). Den sites on average to be 1.7-2.8 times the diameter of other available trees within the vicinity; in Northern California den sites are commonly located in hardwoods (Lofroth et al. 2010).

Fishers on Hoopa Tribal Lands and on the Shasta Trinity National Forest were found to use both conifers and hardwoods; black oak trees were used more than expected at both study areas and the fishers selected sites made up of stands with large diameter trees and dense canopy cover; these sites were generally situated in drainage-bottoms. Similar findings are reported by others for northern California and southern Oregon. Thompson et al. (2011) found fishers often in areas with high numbers of small (<20” dbh) trees, and along lower portions of north facing slopes in the Sierra Nevada range. Diet varies across the range, but in Northern California, small mammals comprise the majority of the fisher diet.

General surveys have been conducted on the west side of the Forest using baited trip cameras and baited 35mm camera stations; positive detections have been made at many of the stations on Scott River, Oak Knoll and Ukonom Districts. An on-going fisher genetic study on federal and non-federal ownerships includes the project area has detected numerous fishers. To date, nine fishers have been collected in vicinity of the Mill Creek area as part of a relocation project. Incidental sightings of fisher have also occurred on the KNF for the most part along major roads and highways associated with rivers or large creeks, but no den sites have been located. Most detections on or adjacent to the Forest have been were located in mid-late seral true fir, mixed conifer and mixed conifer-hardwood habitats.

NSO nesting/roosting/foraging habitat is considered a proxy for high quality fisher denning and resting habitat because of the presence of large trees, denser canopy closure, and structural complexity.

Approximately 44,021 acres of fisher habitat occurs in the Oak Fire Analysis Area, with approximately 785 acres (2% of available habitat) of potential habitat proposed for hazard tree removal.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on fisher habitat. Existing conditions for fisher and their habitat would remain unaltered under the No Action Alternative.

#### Alternative 2 – Action Alternative

Proposed activities from the Action Alternative will have little impact on fisher and/or habitat. Using NSO habitat as a proxy, only 785 acres of potential habitat would be directly affected by the proposed action, which is about 2% of the available habitat in the Oak Fire Analysis Area. Temporary displacement may occur with road use activities in the area that are associated with proposed activities.

### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to fisher or associated habitat.

Under the Action Alternative, there will be little impacts to fisher or their habitat, since only 2% of potential habitat may be affected. Temporary displacement may occur with road use activities in the area that are associated with proposed activities. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

## **North American Wolverine (*Gulo gulo luteus*)**

### *Environmental Baseline*

Sightings of this species are rare in northern California and range from Del Norte and Trinity Counties east through Siskiyou and Shasta Counties, and south through Tulare County. Habitat distribution in California is poorly known for the North Coast and northern Sierra Nevada. In northern California, wolverines range from 500-1500 m elevation (1,600 to 4,800 feet) in Douglas-fir and mixed conifer and true fir habitats.

Camera stations and track plate surveys have been conducted on the KNF but these surveys did not detect wolverines. There are ten documented detections of wolverines on the Klamath National Forest; however, these detections have not been confirmed as valid wolverine detections. *The only known, confirmed location for wolverine in northern California is in the eastern Tahoe area.* Surveys for wolverines have not been conducted within the Analysis Area.

Wolverines are not are not likely to be denning or traveling throughout the Analysis Area.

Suitable NSO nesting and roosting habitat was used as a proxy to evaluate potential wolverine habitat where it occurs. Approximately 8,428 acres of wolverine habitat occurs in the Oak Fire Analysis Area, with approximately 99 acres (1% of available habitat) of potential habitat proposed for hazard tree removal. The likelihood of wolverine using this habitat, however, is very low, since this species prefers remote conditions, away from human activity and areas where persistent snowpack occurs.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on wolverine habitat. Existing conditions for wolverine and their habitat would remain unaltered under the No Action Alternative.

### Alternative 2 – Action Alternative

Proposed activities from the Action Alternative will have little to no impact on wolverine and/or habitat. Using NSO habitat as a proxy, only 99 acres of potential habitat would be directly affected by the proposed action, which is about 1% of the available habitat in the Oak Fire Analysis Area. This habitat, however, is along the road and the likelihood of wolverine using this habitat for denning and travel is very low.

### ***Determination***

Under the No Action Alternative, there would be no direct or indirect effects to wolverine or associated habitat.

Under the Action Alternative, there will be little to no impact on wolverine or their habitat, since only 1% of potential habitat may be affected. The likelihood of wolverine occurring in the Project Area is very low. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project will have **No Effect** on wolverines or their habitat.

### **Pallid Bat** (*Antrozous pallidus*)

#### ***Environmental Baseline***

The pallid bat is a California Species of Special Concern. Throughout California the pallid bat is usually found in low to middle elevation habitats below 6000 feet, however, the species has been found up to 10,000 ft. in the Sierra Nevada. Populations have declined in California within desert areas, in areas of urban expansion, and where oak woodlands have been lost. This species, like many other bats, is extremely sensitive to disturbance at roosting and nesting sites.

A variety of habitats are used, including grasslands, shrublands, woodlands, and coniferous forests. Pallid bats are most common in open, dry habitats that contain rocky areas for roosting. They are a yearlong resident in most of their range and hibernate in winter near their summer roost. Occasional forays may be made in winter for food and water. Pallid bats are unusual in that most of their food consists of large insects captured on the ground.

Day roosts may vary but are commonly found in rock crevices and tree hollows; and have been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. Cavities in broken branches of black oak are very important and there is a strong association with black oak for roosting (Pierson 1999). Roosting sites are usually selected near the entrance to the roost in twilight rather than total darkness. The site must protect bats from high temperatures, as this species is intolerant of roosts in excess of 104 degrees Fahrenheit. Pallid bats are also very sensitive to roost site disturbance. Night roosts are usual more open sites and may include open buildings, porches, mines, caves, and under bridges (Pierson 1999).

Suitable roost sites for pallid bats in the form of large trees and snags do occur in and adjacent to the Analysis Area. Other structures, including buildings and bridges, also occur adjacent to the Analysis Area. Surveys have not been conducted within the Analysis Area, but because suitable large tree roost sites are present due to the extent of the Oak Fire, it is reasonable to conclude that pallid bats are present within the throughout the Analysis Area. Surveys will not be conducted for this species.

Potential habitat occurs throughout the Oak Fire Analysis Area, with approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat proposed for hazard tree removal. Approximately 4,539 trees have been flagged as potential hazards in this estimated road width distance that may

provide suitable habitat as well.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on pallid bat habitat. Existing conditions for pallid bats and their habitat would remain unaltered under the No Action Alternative.

#### Alternative 2 – Action Alternative

Under the Action Alternative, there will be little to no impact on pallid bats or their habitat, since only 2% of potential habitat may be affected. Approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat is proposed for hazard tree removal. Of this 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as well. Temporary displacement of day roosting individuals may occur with road use activities in the area that are associated with proposed activities.

### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to pallid bats or associated habitat.

Under the Action Alternative, there will be little to no impact on pallid bats or their habitat, since only 2% of potential habitat may be affected. Temporary displacement may occur with road use activities in the area that are associated with proposed activities. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

## **Townsend’s Big-eared Bat (*Corynorhinus townsendii*)**

### *Environmental Baseline*

Townsend's big-eared bats occur throughout the western United States. In California, the species is generally associated with cave systems, but they also found under older bridges, basal tree hollows and in the crevices of old buildings and mining structures (Pierson 1999). This species has been found Pluto Caves and other caves in the area north of Mount Shasta. Foraging associations include edge habitats along streams and areas adjacent to and within a variety of wooded habitats (Pierson 1999). The Townsend's bat is a moth specialist, with over 90 percent of its diet composed of moths and butterflies.

Townsend’s big-eared bats are sensitive to disturbance at roost sites and may abandon a roost site following a single disturbance (CDFG 1990). Surveys have not been conducted and no known locations occur within the Analysis Area. Caves or open mines are not known to occur within the Analysis Area; however, suitable roost sites for Townsend’s big-eared bats in the form of large diameter trees are scattered throughout the Oak Fire Perimeter. Thus, it is reasonable to assume that Townsend’s big-eared bats are present in the project area. Surveys will not be conducted for this species.

Potential habitat occurs throughout the Oak Fire Analysis Area, with approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat proposed for hazard tree removal. Approximately 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as well.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on Townsend's Big-eared bat habitat. Existing conditions for Townsend's Big-eared bats and their habitat would remain unaltered under the No Action Alternative.

#### Alternative 2 – Action Alternative

Under the Action Alternative, there will be little to no impact on Townsend's Big-eared bats or their habitat, since only 2% of potential habitat may be affected. Approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat is proposed for hazard tree removal. Of this 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as well. Temporary displacement of day roosting individuals may occur with road use activities in the area that are associated with proposed activities.

### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to Townsend's Big-eared bats or associated habitat.

Under the Action Alternative, there will be little to no impact on Townsend's Big-eared bats or their habitat, since only 2% of potential habitat may be affected. Temporary displacement may occur with road use activities in the area that are associated with proposed activities. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project "may affect individuals, but are not likely to lead to a trend towards Federal listing".

### **Fringed Myotis** (*Myotis thysanodes*)

#### *Environmental Baseline*

The fringed myotis is found in western North America from south-central British Columbia to central Mexico and to the western Great Plains. In California, it is distributed statewide except the Central Valley and the Colorado and Mojave Deserts (CDFG 1990). This species occurs on the Klamath National Forest.

The fringed myotis uses caves, crevices, mines, and buildings for roosting, hibernacula, and maternity colonies (CDFG 1990). They day and night roost under bark and in tree hollows, and in northern California they day roost in snags only (CDFG 1990). Medium to large diameter snags are important day and night roost sites.

In California, this species is found from 1300 to 2200 meters in elevation in pinyon-juniper, valley foothill hardwood and hardwood-conifers (CDFG 1990). There is increased likelihood of occurrence of this species as snags greater than 30 cm in diameter increases and percent canopy cover decreases. Large snags and low canopy cover, typical of mature, forest habitat types, offer warm roost sites. Decay classes were two to four in ponderosa pine, Douglas-fir, and sugar pine.

Open water sources may include artificial sources, such as stock tanks and ponds, in addition to natural sources. Home range size varies with insect abundance, increasing as the number of available insects decreases. Travel distances from roosting to foraging areas are up to eight kilometers (CDFG 1990). The fringed myotis consumes primarily beetles, and is supplemented by moths and fly larvae captured in the air and on foliage (CDFG 1990).



Suitable roost sites for fringe-tailed bats in the form of large trees and snags do occur in and adjacent to the Analysis Area. Other structures, including buildings and bridges, also occur adjacent to the Analysis Area. Surveys have not been conducted within the Analysis Area, but because suitable large tree roost sites are present due to the extent of the Oak Fire, it is reasonable to conclude that fringe-tailed bats are present within the throughout the Analysis Area. Surveys will not be conducted for this species.

Potential habitat occurs throughout the Oak Fire Analysis Area, with approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat proposed for hazard tree removal. Approximately 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as well.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on fringed bat habitat. Existing conditions for fringed bats and their habitat would remain unaltered under the No Action Alternative.

#### Alternative 2 – Action Alternative

Under the Action Alternative, there will be little to no impact on fringed myotis or their habitat, since only 2% of potential habitat may be affected. Approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat is proposed for hazard tree removal. Of this 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as well. Temporary displacement of day roosting individuals may occur with road use activities in the area that are associated with proposed activities.

### **Determination**

Under the No Action Alternative, there would be no direct or indirect effects to fringed myotis or associated habitat.

Under the Action Alternative, there will be little to no impact on fringed myotis or their habitat, since only 2% of potential habitat may be affected. Temporary displacement may occur with road use activities in the area that are associated with proposed activities. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

## **Siskiyou Mountain Salamander (*Plethodon stormi*)**

### *Environmental Baseline*

The Siskiyou Mountain salamander is limited to areas that provide microclimates with high relative humidity and relatively low temperatures during the summer months. Their skin must be moist and permeable for gas exchange, but outside their burrows, their skin can dry which can result in death; this species must be close to structure to retreat when conditions are too dry. To restrict water loss, this species may limit surface activity to only very wet periods. While at the surface, they remain under surface cover objects during the day and are active at night. This species of salamander is primarily a "sit and wait" predator which forages primarily on small invertebrate prey on the forest floor or beneath cover objects at night. It is also likely that they opportunistically feed under cover objects during the day (Welsh and Droegge 2001, Ollivier et al. 2001).

Generally, Siskiyou Mountain salamanders are found in forested stands of larger conifers producing high canopy closure (>70 percent), moist microclimate and rocky soils (typically rock larger than 2 inches in diameter) (Ollivier et al. 2001, Welsh et al. 2007). Canopy closure which helps to maintain moist, relatively cool forest stands capable of supporting stable microclimates appears to be an essential indicator of salamander presence (average canopy closure of about 80.6 percent, Ollivier et al. 2001). Other studies have described this species' habitat with the presence of talus and canopy cover (Clayton et al. 1999 and Suzuki et al. 2008). DeGross and Bury (2007) summarized this species' habitat as diverse, typically on slopes with conifer or mixed conifer with wet microclimates in rocky substrates. However, these microhabitat characteristics may not completely describe every site the salamander has been located. Sometimes, the species is located in areas that don't meet this general habitat description; these sites may be able to maintain rocky, cool, moist habitat based on the physical location (e.g. aspect) (DeGross and Bury 2007).

Siskiyou Mountain salamanders are not reported to use downed woody debris for cover or as refugia during periods of inhospitable climatic conditions; however, woody debris may occasionally be used as cover when it occurs in conjunction with rocky areas. Ollivier et al. 2001) suggested woody debris may also produce a portion of Siskiyou Mountains salamanders' prey base since several invertebrates are associated with decaying woody debris, but this would only apply to woody debris occurring in salamander habitat or close enough that prey may move into salamander habitat.

One of the primary threats to Siskiyou Mountain salamander is loss of high quality habitat. Salamanders move vertically through the substrate in response to climatic changes. When the soil surface conditions are favorable, the salamanders come to the surface for courtship, breeding, and feeding (Welsh and Droege 2001). However, if the vegetation conditions change (e.g. fire or timber harvest) the micro-climate conditions near the surface, soil could be affected thus possibly affecting the salamander habitat quality. The length of time a population may remain viable if surface climatic conditions change from disturbance is not known, but it is likely these individuals have to remain at the site but subsurface to avoid micro-site stress or move to higher quality habitat (Ollivier et al. 2001).

Fire can change the micro-site climate conditions by changing the site composition. Even though fire does not typically change the physical rocky substrate that makes up a large portion of the salamander habitat, fire can consume the organic material (e.g. leaf litter) that may cover the rocky areas and reduce the surrounding vegetation that shades the rocky areas. The surrounding vegetation and organic ground material likely contribute to the micro-site conditions by creating cooler and moister site conditions (Biek et al. 2002). The loss of canopy cover and organic ground material can affect these desirable conditions and possibly result in reducing the capability of the salamanders to be active at or near the ground surface. However, like described above, other physical features (e.g. aspect) may aid in offsetting the change in vegetation.

Potential habitat occurs throughout the Oak Fire Analysis Area, with approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat proposed for hazard tree removal. Approximately 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as snags fall and provide down woody debris.

### *Direct and Indirect Effects*

#### Alternative 1- No Action Alternative

The No Action Alternative would have no direct or indirect effect on Siskiyou Mountain salamander habitat. Existing conditions for Siskiyou Mountain salamander and their habitat would remain unaltered under the No Action Alternative.

### Alternative 2 – Action Alternative

Under the Action Alternative, there will be little to no impact on Siskiyou Mountain salamander or their habitat, since only 2% of potential habitat may be affected. Approximately 39 miles (or 1502 acres, 2% of available habitat) of potential habitat is proposed for hazard tree removal. Of this 4,539 trees have been flagged as potential hazards in this estimated road width distance that may provide suitable habitat as snags fall and provide down woody debris.

### ***Determination***

Under the No Action Alternative, there would be no direct or indirect effects to Siskiyou Mountain salamander or associated habitat.

Under the Action Alternative, there will be little to no impact on Siskiyou Mountain salamander or their habitat, since only 2% of potential habitat may be affected. Temporary displacement may occur with road use activities in the area that are associated with proposed activities, such as heavy equipment use and tractor/cable yarding. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

## **Tehama Chaparral Snail (*Trilobopsis tehamana*)**

### ***Environmental Baseline***

Habitat for the Tehama chaparral snails includes shaded talus and rockpiles (Burke et al 2000). When environmental conditions are favorable, individuals may range from their refugia and can be found under leaf litter and other debris in adjacent forested habitat.

Tehama chaparral snails occur in numerous locations on the KNF are known to occur along the Shasta River on the Scott River Ranger District. There are no known sites in the Analysis Area, however there is habitat present.

Conditions resulting from the Oak Fire, could result in exposing rock piles and talus slopes that were once covered with soil, needle litter or other forest debris. In this case, such habitat may occur in the proposed action area, along the roadside. Not all, but portions could occur throughout the 39 miles (or 1502 acres, 2% of available habitat) proposed for hazard tree removal.

### ***Direct and Indirect Effects***

#### **Alternative 1- No Action Alternative**

The No Action Alternative would have no direct or indirect effect on Tehama chaparral snail habitat. Existing conditions for Tehama chaparral snails and their habitat would remain unaltered under the No Action Alternative.

#### **Alternative 2 – Action Alternative**

Under the Action Alternative, there will be little to no impact on Tehama chaparral snails or their habitat, since the likelihood of suitable habitat occurring in the 2% of potential habitat is low. Approximately 39 miles (or 1502 acres, 2 % percent of available habitat) of potential habitat is proposed for hazard tree removal.

### ***Determination***

Under the No Action Alternative, there would be no direct or indirect effects to Tehama chaparral snails or associated habitat.

Under the Action Alternative, there will be little to no impact on Tehama chaparral snails or their habitat, since only 2% of potential habitat may be affected and the likelihood of suitable habitat occurring in the 2% of potential habitat is low. Along with project design features for this project, proposed activities of the Oak Fire Roadside Hazard Tree Project “may affect individuals, but are not likely to lead to a trend towards Federal listing”.

## **Western Bumblebee (*Bombus occidentalis*)**

### ***Environmental Baseline***

The western bumblebee currently occurs in all states adjacent to California. Historically, the species was broadly distributed across western North America along the Pacific Coast and westward from Alaska to the Colorado Rocky Mountains (Thorp and Shepard 2005, Koch et al. 2012). Currently, the western bumble bee is experiencing severe declines in distribution and abundance due to a variety of factors including diseases and loss of genetic diversity (Tommasi et al. 2004, Cameron et al. 2011, Koch et al. 2012).

In the absence of fire, native conifers encroach upon meadows, which also decreases foraging and nesting habitat available for bumble bees. Bumble bees inhabit a wide variety of natural, agricultural, urban, and rural habitats, although species richness tends to peak in flower-rich meadows of forests and subalpine zones (Goulson 2010).

The Analysis Area has openings or meadows that could provide potential habitat for the western bumble bee, however, no habitat exists in the Proposed Action Area.

### ***Direct and Indirect Effects***

#### **Alternative 1- No Action Alternative**

The No Action Alternative would have no direct or indirect effect on western bumblebee habitat. Existing conditions for western bumblebees and their habitat would remain unaltered under the No Action Alternative.

#### **Alternative 2 – Action Alternative**

Under the Action Alternative, there will be no impact on western bumblebees or their habitat, since no proposed activities will occur in suitable habitat.

### ***Determination***

Under the No Action Alternative, there would be no direct or indirect effects to western bumblebees or associated habitat.

Under the Action Alternative, there would be no direct or indirect effects to western bumblebees or associated habitat. As a result, proposed activities of the Oak Fire Roadside Hazard Tree Project will have **No Effect** on western bumblebees or their habitat.

## Cumulative Effects

### *Past, Present, and Reasonably Foreseeable Activities*

Past and Present activities on Forest Service lands within the Oak Fire Roadside Hazard Tree Removal Project Analysis Area include timber harvest, noncommercial vegetation treatments, broadcast burning and under burning, road maintenance, noxious weed control, wildfire suppression, reforestation/planting and firewood gathering. The Analysis Area for cumulative effects is the Oak Fire Perimeter, along with activities within a 1.0 mile buffer around this area. The land base is primarily Federal Ownership (US Forest Service, Klamath NF) with a mix of Private Ownership, outside of the Oak Fire perimeter, to the east and northeast.

These activities include:

- Happy Thin Project – Commercial thinning and underburning of 452 acres, along with an additional 109 acres of stand-alone underburning in Benjamin, Curly Jack and Little Grider watersheds.
- Ben/Grider Cultural Burning Project - Underburning every 3-5 years in 7 units (308 ac.) containing cultural use species selected with input from Karuk basket makers to maintain and improve traditional gathering sites & provide accessible sites for Elders & children
- Happy Camp Community Fire Hazard Reduction Project - About 300 acres of fuels reduction treatments would be accomplished by brushing, thinning small trees, pruning, & reducing ground fuels, along with controlled burning using prescribed fire.
- Oak Flat Project - Commercial thinning, underburning and Forest Plan amendment to adjust boundaries of Inam Cultural Area.
- Elk Slash and Reforestation Project – treating slash, burning and replanting in response to the 2007 Little Grider Fire.
- Clear Creek Road Storm-proofing Project - 7 miles of Storm-proofing in the Clear Creek Watershed.
- Two Bit Vegetation Management Project – Vegetation Management Project on approximately 7250 that includes underburning, pre-commercial thinning, road decommissioning and meadow restoration.
- Private Property Defensible Space and Hazard Tree Removal – Clearing areas around private ownership to provide safer conditions.

Reasonably foreseeable activities on Forest Service lands within the analysis area include firewood gathering, recreation, road and trail maintenance, and wildfire suppression. Specific projects include:

- Crawford Vegetation Management Project – Thinning in stands for forest health and fuels reduction, with fuels treatments including underburning and pile burning on about 1,600 acres.

There are no additional ongoing or reasonably foreseeable activities proposed within the cumulative effects analysis area.

### *Summary of Cumulative Effects to Alternatives*

Overall, potential direct and indirect effects under the No Action Alternative or direct and indirect effects under the Proposed Action Alternative, when combined with the effects generated by other activities listed above would not result in a decrease in viability for sensitive wildlife species in the cumulative effects analysis area.

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Appendix A. Pacific Southwest Regional Forester's Sensitive Species List for Region 5.

USDA Forest Service, Pacific  
Southwest Region

6/30/2013; Updated  
9/9/2013

**Sensitive Animal Species by  
Forest**

Scientific Name	Common Name	Angeles	Cleveland	Eldorado	Inyo	Klamath	Lassen	Los Padres	Mendocino	Modoc	Plumas	San Bernardino	Sequoia	Shasta-Trinity	Sierra	Six Rivers	Stanislaus	Tahoe	Lake Tahoe Basin
<i>Accipiter gentilis</i>	Northern goshawk	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Empidonax traillii</i>	Willow flycatcher			X	X	X	X	X	X		X	X	X	X	X		X	X	X
<i>Grus canadensis tabida</i>	Greater sandhill crane					X	X			X	X							X	
<i>Haliaeetus leucocephalus</i>	Bald eagle	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Strix nebulosa</i>	Great gray owl			X	X	X	X			X	X		X		X		X	X	X
<i>Antrozous pallidus</i>	Pallid bat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Gulo gulo luscus</i>	North American wolverine			X	X	X	X		X	X	X		X	X	X	X	X	X	X
<i>Martes caurina</i>	Pacific marten			X	X	X	X		X	X	X		X	X	X	X	X	X	X
<i>Pekania pennanti</i>	Fisher			X	X	X	X		X		X		X	X	X	X	X	X	
<i>Myotis thysanodes</i>	Fringed myotis	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Plethodon stormi</i>	Siskiyou Mountain salamander					X													
<i>Bombus occidentalis</i>	Western bumble bee			X		X	X			X	X			X		X		X	X
<i>Trilobopsis tehamana</i>	Tehama chaparral snail					X								X					

## Appendix B. Project Design Features for the Oak Fire Roadside Hazard Tree Project.

Project design features identified for wildlife species within the analysis would be monitored for effectiveness during implementation and assumptions made regarding effects to species would be verified. Pre-implementation surveys for northern goshawk and bald eagles will be completed as required. If nests are located, the nests would be monitored throughout project implementation as needed to minimize effects to nests according to the Forest Plan.

Project Design Feature	Description	Activity Type	Applicable Areas	Rationale or Applicable Standard or Guideline (S&G) or Best Management Practice (BMP)
Wildlife 1	Goshawk surveys will be conducted prior to project implementation. No project activities that modify habitat will occur from March 1st to August 31st within the primary nest zone. If surveys determine no nesting activity, this restriction on project activities may be lifted for the year.	Pre-implementation Survey  Limited Operating Period	All treatment areas.	Forest Plan S&G 8-20
Wildlife 2	Goshawk surveys will be conducted prior to project implementation. No project actions that create loud or continuous noise within 0.25 mile of active goshawk nest sites will occur from March 1st to August 31st. This restriction on project activities may be lifted for the year if surveys determine no nesting activity. This project design feature is not intended to be applied to motor vehicle travel on roadways or log haul routes.	Pre-implementation Survey  Limited Operating Period	All treatment areas.	Forest Plan S&G 8-20
Wildlife 3	Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active Bald Eagle nests during the breeding season (January 1 to August 31 <sup>st</sup> ). Blasting includes rock quarries for road maintenance.	Pre-implementation Survey  Limited Operating Period	All treatment areas involving blasting	National Bald Eagle Management Guidelines
Wildlife 4	Avoid ground-disturbing activities within areas identified as possibly occupied by Survey and Manage mollusk and salamanders due to suitable habitat presence.	Pre-implementation Survey	All treatment areas.	Forest Plan S&G 6-17
Wildlife 5	Retain existing down woody debris larger than 30 inches in diameter at breast height that was present prior to the wildfire to the greatest extent possible; avoid disturbance to (cutting or moving) these large, downed logs during treatment (e.g. slash burning and yarding) where practicable.	Operations	All treatment areas.	Forest Plan S&G 6-16